

WE CLAIM:

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1. An RF signal divider, comprising a single-pole, N-way RF switch, where N is an integer of 3 or more, said switch being operable to connect up to N individual RF ports to a common port, and a switched impedance matching network having at least N-1 switch-selectable matching elements, said impedance matching network being arranged to provide selected impedance matching for said N-way RF switch according to the number of said N individual ports that are connected to said common port by said switch.

2. An RF signal divider responsive to supplied control signals and operative to connect up to N individual RF ports to a common port, where N is an integer of 3 or more, in response to supplied control signals, said divider comprising:

- a single pole, N-way RF switch for selectively connecting said N individual ports to said common port in response to switch drive signals;
- a switchable matching network having N-1 switch-selectable matching elements operative to be connected to said RF switch in response to matching element drive signals; and
- a driver circuit responsive to said control signals for

providing said switch drive signals and for providing said matching element drive signals accordingly to the number of said N individual ports designated to be connected by said control signals.

3. An RF signal divider comprising:

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- a plurality of N individual ports, where N is an integer of 3 or more, each having an inner conductor contact terminal extending into an RF switch cavity;
- an RF common port;
- a planar inner conductor in said switch cavity, connected to said RF common port at one end and having a switch contact at a second end;
- a plurality of N switch reeds each moveable by an electro-magnet between a first position contacting said planar inner conductor and a second position spaced from said inner conductor; and
- a switchable impedance matching network, comprising N-1 impedance matching reeds moveable by an electromagnet between a first position contacting said planar conductor and a second position spaced from said planar conductor.

4. An RF power amplifier, comprising:

an RF power divider having an input RF port and a plurality of N output RF ports, where N is an integer of 3 or more, said power divider including a single pole, N-way RF switch for selectively connecting said input port to up to N of said output ports in response

to control signals, and a switchable matching network, comprising N-1 switch selectable matching elements, for impedance matching said N-way RF switch according to the number of said output ports connected by said switch;

a plurality of N power amplifiers each connected to one of said output port of said power divider and each having a signal output port;

and an RF power combiner having a plurality of N input RF ports and an output RF port, said power combiner including a single pole N-way RF switch for selectively connecting up to N of said input ports to said output port in response to said control signals, and a switchable matching network, comprising N-1 switch selectable matching elements, for impedance matching said N-way RF switch according to the number of said input ports connected by said switch.

5. An RF power amplifier as specified in claim 4, further comprising signal detectors for monitoring the operation of said power amplifiers and a circuit for generating control signals for disconnecting a power amplifier using said N-way switches in response to fault signals from said signal detectors.